

Strategies for teaching awareness of the built environment or landscape.

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Introduction: a lack of integration

How can we teach architecture students to deal with the surroundings of an architectural intervention? Today, many design assignments in architecture schools are organised in the same way as commissions in real architecture practices. Studio projects seem to be copies of architecture competitions for professionals, including a list of requirements and wishes made by one or more stakeholders at the start of the project, and including a review with a jury at the end. Students start their project with some sketches, which are further developed in a preliminary design, and at the end they make up design drawings and design details. This sequence works for professionals who master all the aspects of architecture, and therefore can foresee the consequences of the realisation of a preliminary design sketch. But this is not the case for beginning architecture students. For them, not being able to foresee the contextual consequences of their first ideas for the final result, the project often turns out at the end of the design process as a choice of the less disturbing option to deal with the surroundings of their project.

Confrontation of this lack of integration with good architecture

This lack of integration makes good architecture impossible, because earlier research proves that in good architecture, more satisfactory solutions encompass more topics of the stated problem at the same time. So these good solutions integrate many topics, including context.

Their idea of integration has been formulated in the past in different ways by several authors. Among Rasmussen¹, the appearance of a building is only one of the several factors of interest. In a good building, plans, sections and elevations must harmonise with each other. Architecture is regarded as something indivisible, something you cannot separate into a number of elements. Ideas encompassing multiple topics are also called integrated² or composite³. Zumthor considers architecture at its most beautiful when things have come into their own; when they are coherent. That is when everything refers to everything else, and when it is impossible to remove a single thing without destroying the whole. The form reflects the place, the place is just so, and the use reflects this and that. In good architecture, form and construction, appearance and function are no longer separate. They

belong together and form a whole⁴. Siza⁵ talks about design as the subtle balance of all the facets of the social, functional, environmental, economic and contextual problematic of the project.

But integrating all constraints shouldn't be understood as eliminating all complexity and contradiction. Geers⁶ uses internal consistency as the main criterion to distinguish a good project from a bad one, but at the same time he nuances this consistency. Complexity does not and should not exclude consistency. Every proper project engages in the found reality. It is as much part of the real context, as it is against it. It is its mirror and its transformer. A proper project fails, since any possibility to make complexity consistent fails.

Three strategies to counter this lack of integration

A literature review on didactics and on teaching architectural design, brings up 3 interesting strategies to counter the lack of integration of context in design assignments at architecture schools.

Thematic Assignments

First, thematic assignments simplify the complexity of architectural problems and make it possible to focus on certain aspects. In other words, thematic assignments can help to exercise a refined taste for specific aspects of architecture. The integration of constraints, or more specific for this case, the coherence of context, with construction and/or form and/or space are important aspects of architecture, which can be exercised with thematic assignments. Hume⁷, when discussing the standards of good taste, explains the importance of a refined taste by isolating different components. He talks about organs being so sensitive that they let nothing escape and yet so precise that they perceive each component of the composition. Because these properties sometimes occur in small quantities or mixed and confused, it often happens that taste by such tiny features is not affected or is unable to provide specific aromas to keep apart in the disorder in which they arise. Isolating these components makes it possible to create sensitivity for them.

Now what are the constraints in architecture that should be ignored just to isolate form, construction, space and context? Already about 2000 years ago, Vitruvius wrote that in architecture, account should be taken of strength, utility and grace. During history, architecture gradually evolved from a focus on solids,

to a shared focus on the solids and the voids⁸ and later sharing the focus also with the context⁹. So in 1979, Ching¹⁰ defined the 3 groups of Vitruvius as technics, function and form, and added space as a fourth group and context as an upper scale.

In the case of a focus on context, in relation with form, and/or space and/or construction, the project is to be isolated from function. Isolation from function will help, because all functional constraints would lead away the attention of the students from the integration of context with one or more of the other constraints.

Working on full scale

Secondly, working on scale 1/1, reinforces the focus on specific aspects as proposed with the thematic assignments in the first strategy. This is because by working on scale 1/1, the difficulty of rescaling and problems of representation are both omitted out of the design process and reinforce the possibility of focus.

Teaching backwards

And thirdly, the order in which steps are applied in practice, does not have to be the order in which they should be taught. There are very good reasons to teach "backwards", so there is always something before you that you already know. Among De Bono¹¹, it's useful to teach the "end result" in an early stage, so the student knows what he can achieve while he or she develops his skills. In architecture, Zumthor¹² confirms this, saying that the drawing of scale plans also begins with the concrete object, thus reversing the order of "idea-plan-concrete object", which is standard practice in professional architecture. First the concrete objects are constructed; then they are drawn to scale. For Zumthor, all design work starts from the premise of this physical, objective sensuousness of architecture, of its materials. To experience architecture in a concrete way, means to touch, see, hear, and smell it. To discover and consciously work with these qualities - those are the themes of his teaching. All the design work in the studio of Zumthor is done with materials. It always aims directly at concrete things, objects, installations made of real material (clay, stone, copper, steel, felt, cloth, wood, plaster, brick). There are no cardboard models. Actually, no "models" at all in the conventional sense, but concrete objects, three-dimensional works on a specific scale.

Working backwards in design is also related to the simultaneous development of problem and solution. What you need to know about the problem only becomes apparent as you're trying to solve it¹³. It seems that creative design is not a matter of first fixing the problem and then searching for a satisfactory solution concept. Creative design seems more to be a matter of developing and refining together both the formulation of a problem and ideas for a solution, with constant iteration of analysis, synthesis and evaluation

processes between the two notional design 'spaces' - problem space and solution space¹⁴. Creative design involves a period of exploration in which problem and solution spaces are evolving and are unstable until fixed by an emergent bridge which identifies a problem-solution pairing. A creative event occurs as the moment of insight at which a problem-solution pair is framed. And also, in design, the solution and the problem develop together. Design is emergent - relevant features emerge in putative solution concepts, and can be recognised as having properties to the developing problem-concept¹⁵. Designing is about assessing the answer, not the question¹⁶.

Casestudy: an assignment which concentrates on the integration of context, form, space and construction

All three strategies were applied in a thematic studio assignment for second year bachelor students in architectural engineering.

Method

The project started where the design process in practice often ends; with the realisation of an intervention in an environment. Therefore, groups of 3 to 4 students were assigned a perimeter, where they could choose an environment to work in. The students explored the impact of an intervention on a building or landscape. This was done by designing while building their intervention at the same time on scale 1/1. Therefore, students brought all kinds of materials and objects, in all kinds of forms, with them to the environment to experiment with. Several variants were investigated and the impact on the surroundings of the intervention was evaluated.

During the second week, and depending on the focus of the group, students explored also formal, spatial and constructive aspects in relation with the impact on the environment. The structural aspects, like for example the method of assembly, or the use of intermediary devices, were examined together with spatial and/or formal qualities, like elegance, composition and harmony. These tests delivered at their turn feedback for revisions and optimisation of the intervention in its context. At the end, some groups were able to harmonise context, construction, form and space.

Results

The group CUVY (Cappaert, Use, Verhaegen, Ysenbaardt) used duck tape to introduce rhythm and directions in a staircase. The horizontal lines on the curved wall emphasise the curves and the oblique lines on the stairs interact with the height of the steps. At the same time, both line systems harmonise into one design.

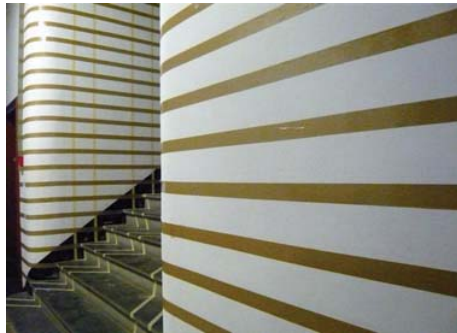


Fig. 1. group CUVY



Fig. 2. group CUVY

The group JMKG (Johannes, Maarten, Koen,, Greet) changed the flooring and scale of a toilet room, by covering the whole floor with dish washing sponges. The group also paid attention to the detailing, using the same sponges as plinths on the borders of the flooring.



Fig. 3. group JMKG

The group MRRN (Mercelis Raimondi Ruelens Nikogosyan) accentuated the entrance of a public park along a bicycle lane by covering the entrance with orange cables, thereby defining a hierarchy in space, and at the same time taking special care of the non-destructive fixation of the cables on the trees.



Fig. 4. group MRRN



Fig. 5. group MRRN

The group VVVU (Van Bockxelaere Visser Vancaudenberg Van Ussel) dropped some parking carpets on a non-organised parking area. Some of these carpets did follow usual parking geometry, but not all of them. More regularly placed carpets were used as a single parking spot, in some with only minor irregularity also. But others mostly not; causing frictions and interactions between the composition of cars on the one hand and the composition of carpets on the other. The materiality and color of these carpets were also chosen as an additional element in this interplay of compositions.



Fig. 6. group VVVU

Conclusion

Thematic 'design & built' assignments on full size simplify the complexity of architectural problems and make it possible for young architecture students to focus on certain aspects of the architecture and the design process. During the whole design process of a design assignment that we based on this theory, the formal and/or spatial and/or constructive aspects of what the students were building, were visible and at the same time, the contextual qualities were tangible on a full size scale. While not paying attention to function in these thematic design assignments, the bachelor students were able to concentrate on the integration of context, form, space and construction. They were able to focus on the link between on the one hand the contextual qualities of their intervention, and on the other hand the constructive, formal and spatial qualities of their intervention.

Notes

¹ Rasmussen, Steen Eiler. "Experiencing Architecture" MIT Press: Cambridge. 1959. p 09-33.

² Jones, John Chris. "Design Methods" John Wiley & Sons: New York. 1992.

³ Goldschmidt, G., and D. Tassa. "How good are good ideas? Correlates of design creativity" in *Design Studies* vol. 26 no. 6. 2005.

⁴ Zumthor, Peter. "Thinking Architecture" Birkhauser: Basel. 2006.

⁵ Siza, Alvaro. "Alvaro Siza Vieira: Simplicity is always complex" on *Abitare.com* (accessed January 2010).

⁶ Geers, Kersten. "Crafting architecture. In search of the architect's project" in *Architecture as a craft Architecture, drawing, model and position* Sun. 2011. p 218-219.

⁷ Hume, David. "Of the Standards of Taste" 1757.

⁸ Giedion, Sigfried. "Space, Time and Architecture" Harvard University Press: Cambridge, MA. 1941.

⁹ Frampton, Kenneth "Towards a Critical Regionalism: Six Points for an Architecture of Resistance" in *The Anti-Aesthetic. Essays on Postmodern Culture* Bay Press: Port Townsend. 1983.

¹⁰ Ching, Francis D. K. "Architecture: Form Space and Order" John Wiley & Sons: New York. 1979.

¹¹ De Bono, Edward. "Teach Your Child to Think" Viking: New York. 1998.

¹² Zumthor, Peter. "Thinking Architecture" Birkhauser: Basel. 2010.

¹³ McCormac, Richard "Design is Open" on *University TV Broadcast on BBC* London, 1976.

¹⁴ Dorst, Kees and Nigel Cross. "Creativity in the design process: co-evolution of problem-solution" in *Design Studies* 22. 2001. p 425-437.

¹⁵ Cross, Nigel. "Natural intelligence in design" in *Design Studies* 20 1999. p 25-39.

¹⁶ Mau, Bruce. "An Incomplete Manifesto for Growth" in *Life Style* Phaidon. 2000. p 88-91.